

Phonological change

Principles of language change

Holger Diessel
University of Jena

holger.diessel@uni-jena.de
<http://www.holger-diessel.de/>

Types of sound change

1. Sporadic vs. regular
2. Conditioned vs. unconditioned
3. Phonemic vs. allophonic

Sporadic change

sp^ræc > speech
> sp^ring
> sp^rinkle

g^rammar > g^lamour
> g^rain
> g^raps

Regular change

Grimm's law

[p t k] > [f θ h]

Neogrammarian Hypothesis

Unconditioned change

[fif] > [faif] 'five'

[wif] > [waif] 'wife'

Conditioned change

[bed]

>

[be:d]

German

Käse

Kind

Kinn

Kirsche

Kirche

König

English

cheese

child

chin

cheery

church

king

Allophonic vs. phonemic change

Allophonic change (also called 'shift' or 'non-phonemic change') does **not** alter the number of phonemes in a language.

Phonemic change alters the number of phonemes in a language. There are two basic types of phonemic change: (i) addition, (ii) loss.

Allophonic change

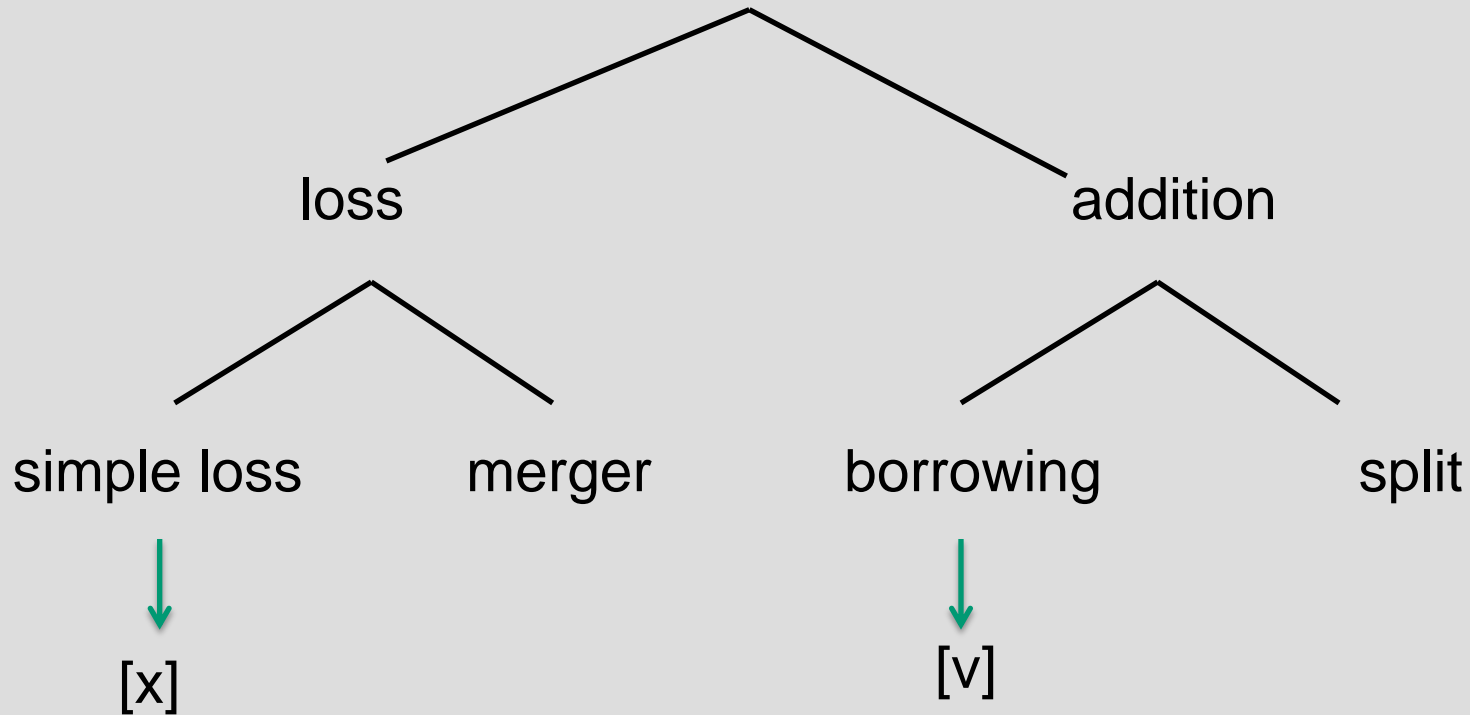
*p t k → f θ x/h

*b d g → p t k

*bh dh gh → b d g

Phonemic change

Phonemic change may come about through:



Merger 1

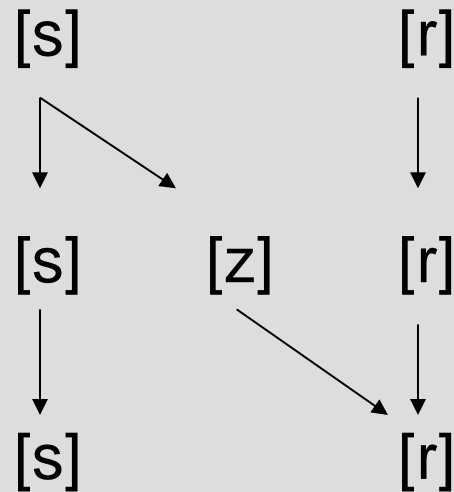
PIE	PIE	Latin	Gothic	OHG	
*o	*okto-	octo	ahtau	ahto	‘eight’
*ə	*pəter-	pater	fadar	fater	‘father’
*a	*agro-	ager	akrs	ackar	‘acre’

*o/*ə/*a > *a

Merger 2

High German [θ] merged with [d]

Split 1 – [s] vs [r]



Pre-Latin → Latin

Split 2

	cat	chaff	chin
Stage 1	katt	keaff	kinn
Stage 2	katt	tʃeaf	tʃinn
Stage 3	katt	tʃaff	tʃinn

Loss of conditioning environment

Split 3 - Umlaut

	SG Mouse	PL Mice
Original	[muːs]	[muːs-i]

Split 3 - Umlaut

	SG Mouse	PL Mice
Original	[muːs]	[muːs-i]
Allophonic change	[muːs]	[myːs-i]

Split 3 - Umlaut

	SG Mouse	PL Mice
Original	[muːs]	[muːs-i]
Allophonic change	[muːs]	[myːs-i]
Loss of cond. environment	[muːs]	[myːs]

Split 3 - Umlaut

	SG Mouse	PL Mice
Original	[muːs]	[muːs-i]
Allophonic change	[muːs]	[myːs-i]
Loss of cond. environment	[muːs]	[myːs]
Unrounding	[muːs]	[miːs]

Split 3 - Umlaut

	SG Mouse	PL Mice
Original	[muːs]	[muːs-i]
Allophonic change	[muːs]	[myːs-i]
Loss of cond. environment	[muːs]	[myːs]
Unrounding	[muːs]	[miːs]
GEV	[muːs]	[mais]

Why do speech sounds change?

Economy:

1. assimilation
2. lenition

Assimilation

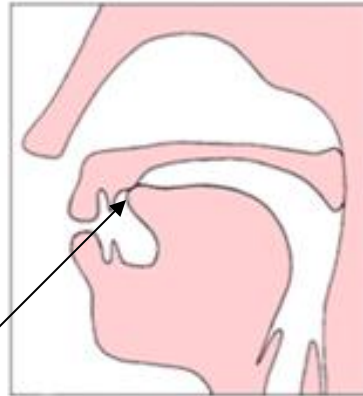
(1) *Latin* *Italian*
nocte [nokte] > notte [notte]

(2) *English* *German*
cheese Käse
child Kind
chin Kinn

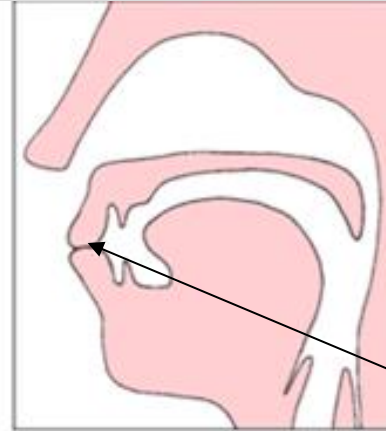
church cyrice (Old English)

(3) nature [tj] > [tʃ]
education [dj] > [dʒ]
tissue [sj] > [ʃ]

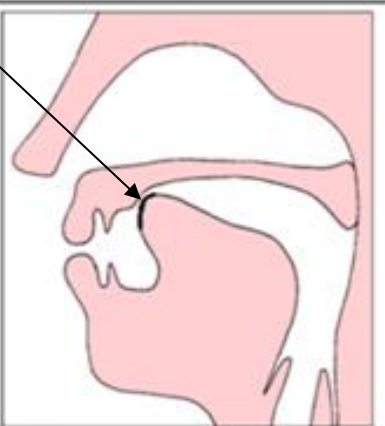
Vocal tract



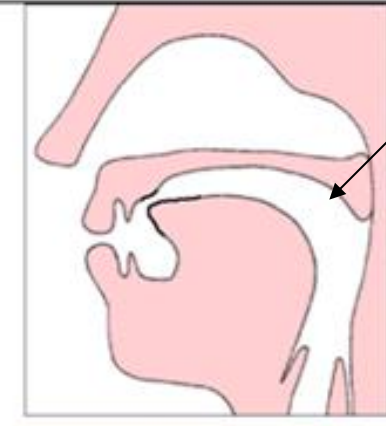
[t/d]



[m]



[s/z]



[n]

Assimilation

(4) pain [pɛ̃]
fin [fɛ̃]

'bread'
'end'

(5) *English*
*[mus]
*[mys-i]

'mouse' SG
'mice' PL

Phonological change

Principles of language change

Lenition

(1) Spirantization

Latin

habebat 'he had'

faba 'bean'

>

>

Italian

aveva

fava

(2) Stop > liquid

English

[wɒtr]

>

American English

[wɒrr]

Lenition

(3) Oral stop > glottal stop

English

[wɒtr]

London, Glasgow

[wɒʔr]

(4) Voicing

Latin

strata

lacu

>

>

Italian

strada

lago

Lenition

(5) Degemination

Latin

cuppa 'cup'

gutta 'drop'

siccu 'dry'

>

>

>

Spanish

copa 'wine glass'

gota 'drop'

seco 'dry'

(6)

C

*kel (PIE)

*sweks (PIE)

*pana (pre-Japan)

>

>

>

>

H

hill (Engl.)

hex (A. Greek)

hana (Japan)

Deletion

French (consonant)

lit	'bed'
gros	'big'
murs	'walls'

English (consonant)

knee
knot
knife

English (vowel)

chocolate
camera
police
correct

medicine
battery
dictionary

syncope

Lenition

stop > fricative > approximate

stop > liquid

oral stop > glottal stop

voiceless > voiced

geminate > simplex

Other sound changes

Addition

(1) [sʌmpθɪŋ] 'something'
[drɛmpɪt] 'dreamt'
[tʃʌmpski] 'Chomsky'

(2) [fæntsi] 'fancy'
[prɪnts] 'prince'

(3) [æθəlɪt] Epenthetic vowel

Epenthetic vowel

Spanish (borrowings from English)

esnobe

‘snob’

eslalom

‘slalom’

estricnina

‘strychnine’

Latin

Spanish

spatha

espada ‘sword’

statu

estado ‘state’

scala

escala ‘ladder’

Metathesis

Old English

Modern English

wæps	>	wasp
bridd	>	bird
frist	>	first
thridde	>	third
ask /aks	>	ask

Compensatory lengthening

Pre-Old English

Middle English

Modern English

*[fɪnf]

>

[fiːf]

>

[faɪf]

*[gans]

>

[guːs]

Exercises

k

a__u

#__o

#__u

#__a

Θ

#__je

a__i

e__(e)

a__e

#__e

e__i

a__jo

l__(e)

γ

e__u

a__u

e__o

a__o

Below are the various forms of the French word 'cent' [sã] 'hundred' as it probably developed over the last 6000 years. Characterize the sound changes.

[kmtom] > [kemtom] > [kentom] >

[kentum] > [kentũ] > [kento] >

[kjento] > [tsento] > [tsent] >

[sent] > [sen] > [sẽ] >

[sã]

kmtom

kjento

kemtom

tsento

kentom

tsent

kentum

sent

kentũ

sen

kento

sẽ

The drive for symmetry

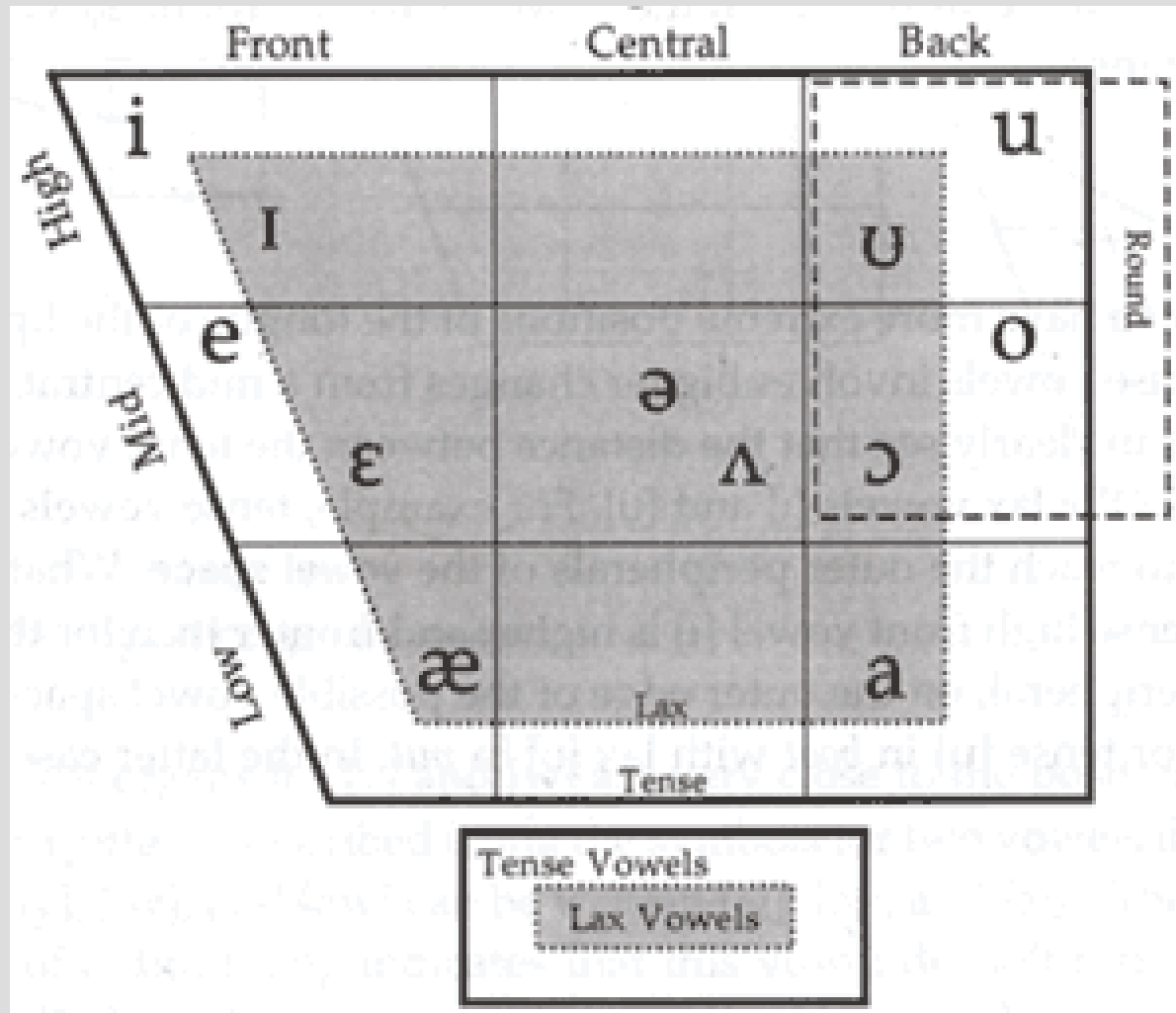
English plosives

	Labial	Alveolar	Velar
Voiceless plosive	p	t	k
Voiced plosive	b	d	g
Nasal	m	n	ŋ

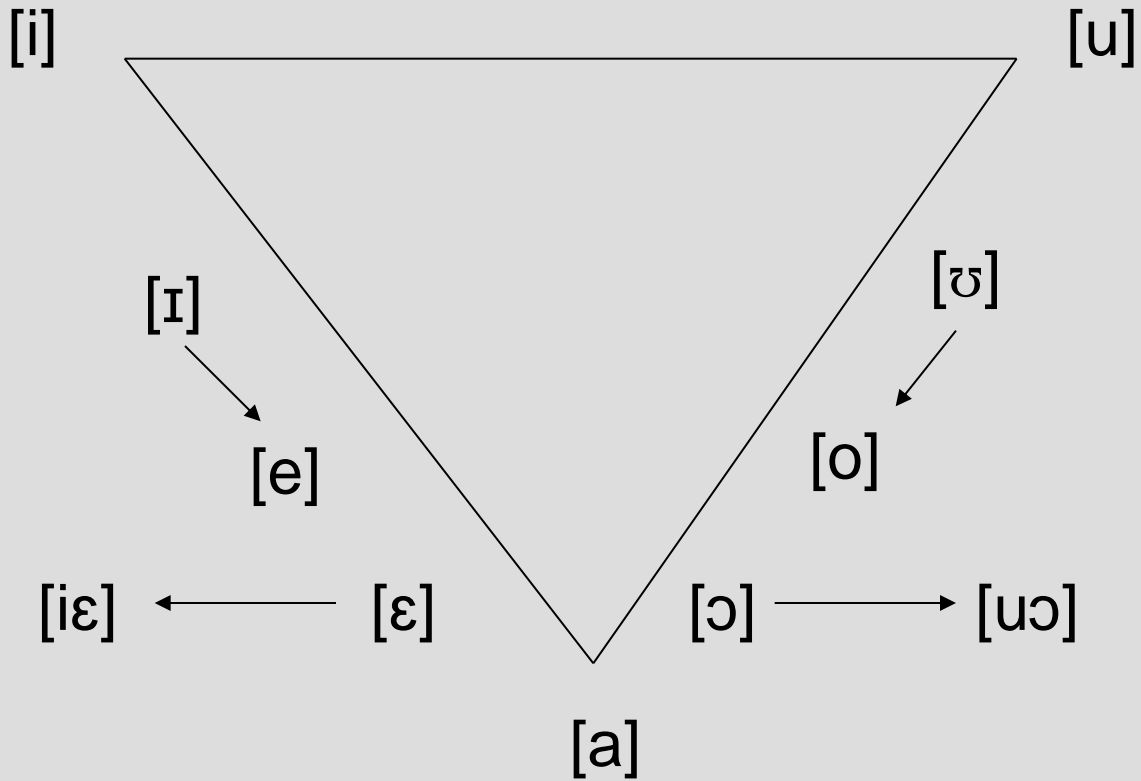
English fricatives

	Labiod.	Interd.	Alveolar	Palatal	Velar
Voiceless	f	θ	s	ʃ	h
Voiceless	v	ð	z	ʒ	

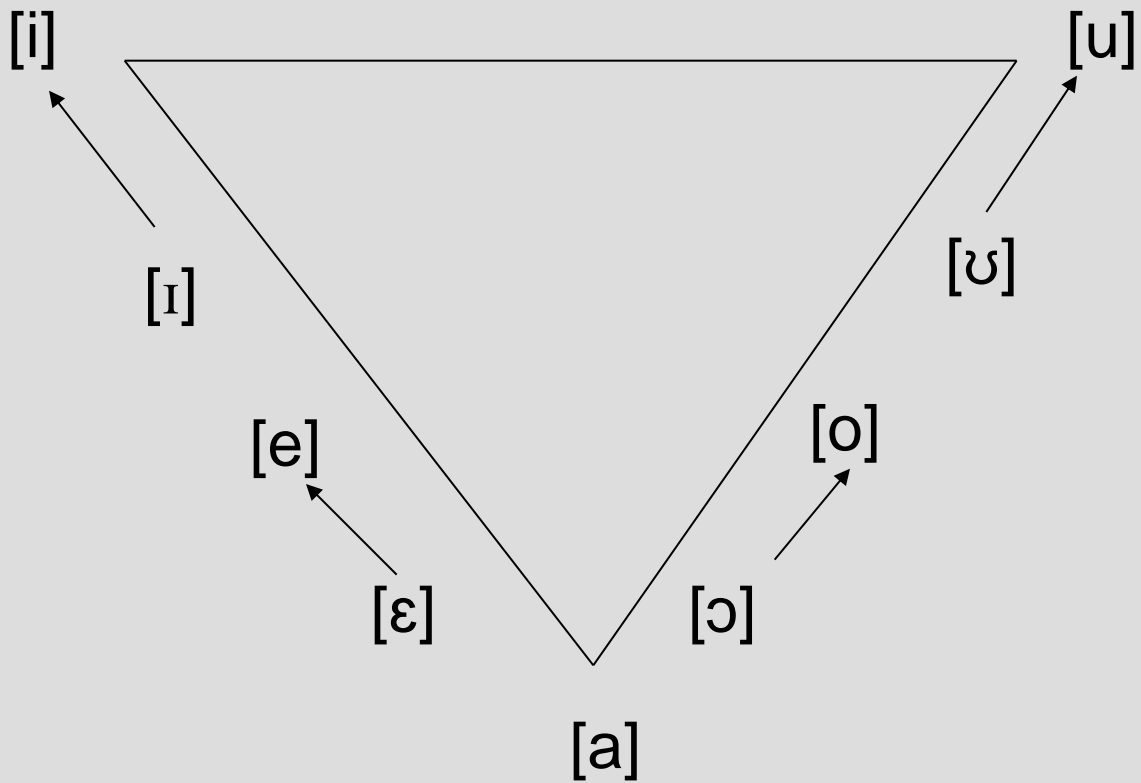
English vowels



Italian



Sardinian



The Great English Vowel Shift

[bru:n]	brown
[de:man]	deem
[do:m]	doom
[du:n]	down
[fi:f]	five
[he:]	he
[hu:s]	house
[i:s]	ice
[mu:θ]	mouse
[ro:st]	roost
[ti:d]	time
[la:te]	late

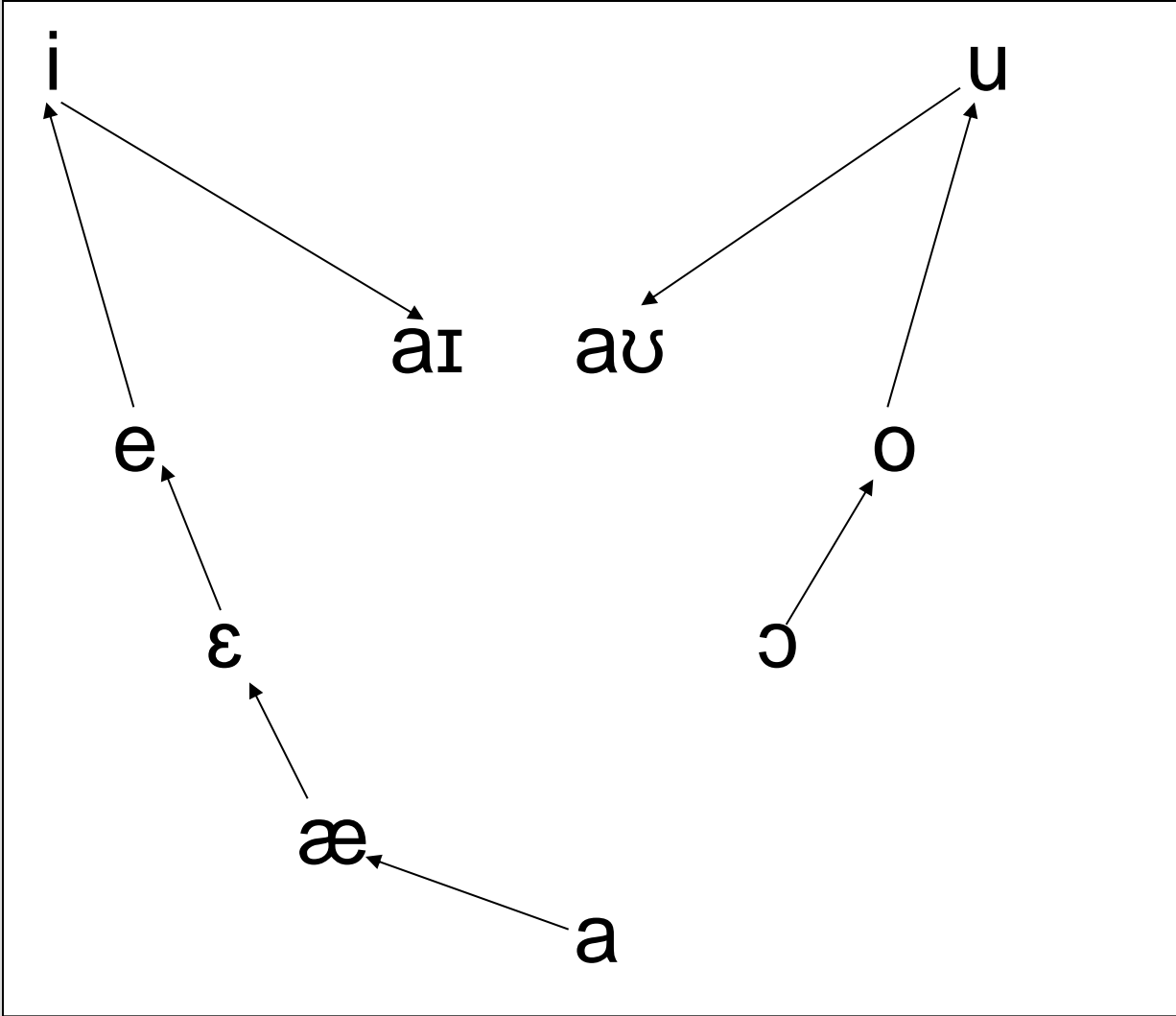
The Great English Vowel Shift

[i:]	>	[aɪ]	
[u:]	>	[aʊ]	
[e:]	>	[i]	
[ɛ:]	>	[e]	
[æ:]	>	[i]	(via ε/e)
[o:]	>	[u]	
[a:]	>	[e]	(via æ)
[a:]	>	[o]	(OE to ME)

The Great English Vowel Shift

Middle English	Chaucer	Shakespeare	Modern
i:	[fi:f]	[falv]	five
e:	[me:de]	[mi:d]	mid
ɛ:	[klɛ:ne]	[kle:n]	clean
a:	[na:ma]	[ne:m]	name
u:	[du:n]	[daʊn]	down
o:	[ro:tə]	[ru:t]	root
ɔ:	[gɔ:tə]	[go:t]	goat

The Great English Vowel Shift



The Great English Vowel Shift

A: is θat θi tʃild
B: ye hir namə is an
A: ə god and hɔli namə
B: sonə ʃe wil be θre yeriz əv adʒə
A: wil ʃe speke to me
B: ye ʃe spekθ wʊndər ludə

Middle English



(.wav)

A: iz ðæt ðəi tʃəɪld
B: ye hər næm iz æn
A: ə gud and hɔli nam
B: sun ʃi wil bi θri yirz əv ædʒ
A: wil ʃi spek tu mi
B: ye ʃi speks wəndər ləʊd

1445



(.wav)

The Great English Vowel Shift

A: is θat θi tʃild

Middle English

B: ye hir namə is an

A: ə god and hɔli namə

B: sonə ʃe wil be θre yeriz əv adʒə

A: wil ʃe speke to me

B: ye ʃe spekθ wundər ludə

A: iz ðæt ðəi tʃəild

1445

B: ye hər næm iz æn

A: ə gud and hɔli nam

B: sun ʃi wil bi θri yirz əv ædʒ

A: wil ʃi spek tu mi

B: ye ʃi speks wəndər ləud

Competing motivations

1. Ease of pronunciation
2. Ease of perception (symmetry)
3. Interaction with stress (vowel reduction)
4. Interaction with morphology (levelling)
5. Borrowing

Competing motivations

A crucial observation has been that there are always competing phonological pressures, both syntagmatic and paradigmatic; these can never all be satisfied at once, and a great deal of phonological change can be understood as endless attempts at satisfying these competing pressures, with each resulting change typically introducing new strains into the system.”

(Trask 1996: 95-96)